Material Introduction

PVDF Polymer

PVDF – Polyvinylidene Fluoride

Overview-

PVDF delivers high performance at a competitive cost. Its inherent purity positions it as ideal for a variety of applications which involve extreme conditions. PVDF is characterized by low permeability as well as strong abrasion and chemical resistance. Also known as Kynar®, PVDF is used in many industries including fluid management, aerospace, energy, automotive, fiber optics, and medical.

This fluoropolymer has a good performance to cost ratio. PVDF possesses a host of properties that make it useful in a variety of applications that need flexibility without sacrificing performance. Fiber optic markets utilize PVDF for furcation tubing. PVDF's temperature, radiation, and chemical resistance make it adapted to a variety of harsh environments. The aerospace industry uses PVDF tubing and drawn fiber because of PVDF's inherent flame resistance and good insulation properties.

**Kynar® is a registered trademark of Arkema Inc.*

RADIATION RESISTANCE

CHEMICAL RESISTANCE

DIELECTRIC STRENGTH

*Noted for its low permeability traits, PVDF (also known as *Kynar®) possesses strong resistance to abrasion, chemicals, and dielectric interference.*

APPLICATIONS

- Fluid transfer lines
- Braided mesh for filtration
- Electrical insulation
- Coating for fiber optics
- Medical components

AVAILABLE PRODUCTS

- Coated optical fiber
- Extruded tubing
- Co-extrusions
- Custom profiles
- Multi-Lumens
- Monofilament
- Drawn fiber

QUICK SUMMARY OF PROPERTIES

- Superior tensile properties and impact strength
- Excellent resistance to creep and fatigue
- Good mechanical properties over a broad temperature range
- Radiation resistance
- High dielectric strength over a wide temperature range
- Chemically resistant

PVDF

The information presented in this publication is believed to be accurate and is not intended to constitute a specification. Property characteristics are dramatically impacted by geometry and processing method, thus properties of extruded parts may vary. In some instances, data may not be available for publication and will be notated as "na" where applicable.

These tables are meant to serve as a general guideline only. Users should evaluate the material to determine suitability for their own particular application.

PHYSICAL	ASTM	PVDF
Density (g/cc)	D792	1.76 - 1.82
Water Absorption (%)	D570	0.02 - 0.07
Refraction Index (N_D)	D542	1.40 - 1.42
Oxygen Index (%)	2868	42 - 44

MECHANICAL	ASTM	PVDF
Hardness, Shore D	D2240	50 - 80
Ultimate Tensile Strength (MPa)	D638	14 - 55
Elongation at Break (%)	D638	20 - 800
Modulus of Elasticity (MPa)	D638	241 - 2310
Flexural Modulus (MPa)	D790	192 - 2310
Coefficient of Friction	D1894	0.14 - 0.54

ELECTRICAL	ASTM	PVDF
Volume Resistivity (Ω - cm)	D257	10^{15} - 2.0×10^{14}
Dielectric Constant 1 MHz	D150	4.5 - 13.5
Dielectric Strength (V/mil)	D149	254 - 1100

THERMAL	ASTM	PVDF
Thermal Conductivity (W/m - K)	D433	0.144 - 0.2
Maximum Service Temp, Air (°C)	na	150
Melt Temp (°C)	D3418	117 - 172
Decomposition Temp (°C)	AIR	375
Coefficient of Thermal Expansion, Linear 20° (µm/m-°C)	D696	80 - 194